

REMARKS

By this Amendment, claims 23, 24, 26, and 43 have been amended. Claims 33 and 35 have been cancelled without prejudice. Claims 48 and 49 have been added. Claims 23-32, 34-38 and 40-49 are pending in the application. Applicant reserves the right to pursue the original claims and other claims in this and other applications.

The Office Action states that the specification improperly attempts to incorporate essential material references. Paragraph [0027] has been amended as shown in the substitute specification to remove the incorporation by reference.

FIGS. 4, 5, and 6 are objected to because the figures are faint reproductions of color photographs. Formal drawings were filed on September 13, 2004. Applicant herewith submits replacement sheets to replace FIGS. 1-6. FIGS. 1 and 4-6 have been amended to make the reference numbers in the figures consistent between the figures and with the specification. Specifically, FIGS. 2 and 3 have been amended to change the word "INTERFERENCE" to "CONFOUNDER."

Claims 23-32, 34-38 and 40-47 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement for allegedly containing subject matter that was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. Claims 23-24 have been amended to obviate this rejection. Specifically, claim 23 has been amended to recite "analyzing the gamma counts associated with the object." Claim 24 has been amended to remove the term "back scattered" and to include the additional steps of "irradiating the object," and "analyzing the common eigen value signatures." Applicant respectfully requests that the rejection be withdrawn and the claims allowed.

Claims 23-32, 34-38 and 40-47 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 23 and 24 have been amended as shown above to obviate the concerns raised in the Office Action. Specifically, claim 23 has been amended to replace the word "whether" with the word "that." Claim 24 has been amended to correct the lack of antecedent basis. Claim 35 has been canceled. Claim 43 has been amended to remove the reference to "chlorine."

With regards to claims 28 and 31, applicant respectfully submits that the use of the term "sequentially" does not render the claims vague, indefinite, or incomplete because the term sequentially is a well defined and common term. The mere fact that a claim is broad does not render it indefinite. Applicant respectfully requests that the rejection be withdrawn and the claims allowed.

Claims 23, 35-38, 40-43, and 45 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,114,662 ("Gozani") or European Patent 033634 ("Allyson"). This rejection is respectfully traversed.

Claim 23, as amended, recites, inter alia, "generating neutron particles from a plurality of neutron sources, each source having an intensity of about 10^7 neutrons/second or less." Neither Gozani nor Allyson disclose this feature. In fact, neither Gozani nor Allyson disclose the intensity of the neutron sources. Furthermore, it would not be obvious to adjust the intensity of the neutron source to the level recited by claim 23 because a lower intensity of the neutrons makes it more difficult to detect explosives and controlled substances (specification, paragraph 0003) and simply lowering the intensity may render a detection system inoperable. Gozani and Allyson do not disclose that the detector may detect gamma rays generated by "neutron particles from a plurality of

neutron sources, each source having an intensity of about 10^7 neutrons/second or less” as recited by claim 23 and do not teach or suggest how to modify their respective detectors so that they might do so.

Also, claim 23, as amended, recites, *inter alia*, “determining that an explosive or controlled substance is present in the object when the relative atomic percentages of elements comprising the object are substantially similar to the relative atomic percentages of elements associated with known explosives and controlled substances.” Neither Gozani nor Allyson discloses this feature. Gozani discloses that “each gamma ray received by each detector produces successive signals representing the concentration of nitrogen” (column 9, lines 10-12) and Allyson discloses an invention that detects “high concentrations of nitrogen in moving luggage” (column 2, lines 11-12). However, neither Gozani nor Allyson disclose a method for the detection of elements other than nitrogen in the object. Because Allyson and Gonzani do not teach detecting elements other than nitrogen, Allyson and Gozani cannot teach using “relative atomic percentages” as recited by claim 23, because a relative atomic percentage requires the detection of more than one element.

Since Gozani and Allyson do not disclose all the limitations of claim 23, claim 23 is not anticipated by Gozani and Allyson. Claims 35-38, 40-43, and 45 depend from claim 23 and are allowable for at least the same reason. Applicant respectfully requests that the rejection be withdrawn and the claims allowed.

Claim 24 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Gozani, Allyson, or U.S. Patent No. 5,557,108 (“Tumer”). This rejection is respectfully traversed.

Claim 24, as amended, recites, *inter alia*, “analyzing the common eigen value signatures using a plurality of analytical tools to produce a plurality of analyses.” Gozani, Allyson, and Tumer do not disclose this feature. To the contrary, Gozani only discloses a comparison of the nitrogen profiles located within the object to profiles that have been entered into the system (column 9, lines 64-68). Allyson only discloses a system of summing the nitrogen contents from different “windows” (column 9, lines 9-13). Therefore, Allyson merely focuses upon the concentration of nitrogen in a segmented group of areas of the object and does not perform any additional analysis beyond inspecting for high concentrations of nitrogen. Tumer only discloses a comparison of the gathered data to a database of suspect materials that has been entered by the user (column 8, lines 12-16). While Tumer does disclose the production of an image showing the concentration of nitrogen throughout the object (column 8, lines 41-43), this image is merely a display of data and is not an analytical tool. Therefore, none of Gozani, Allyson, and Tumer teach the use of “a plurality of analytical tools to produce a plurality of analyses” as recited by claim 24.

Furthermore, claim 24, as amended, also recites, *inter alia*, “subjecting the plurality of analyses to a hierarchy of classifiers to determine if an explosive or controlled substance is present in the object.” Gozani, Allyson, and Tumer do not disclose this feature.

The Office Action states that Gozani teaches that a classifier is “testing at the second inspection station where the information obtained from the first inspection station is confirmed or disproved” (Office Action at page 9). Applicant respectfully disagrees with this characterization because testing an object twice using an identical test is not equivalent to “subjecting the plurality of analyses to a hierarchy of classifiers” as recited by claim 24. Instead, it is merely a way to obtain two sets of data.

Also, the Office Action states that Tumer teaches that a classifier is the “superposition of the data ... with x-ray imagery to obtain confirmation of explosives detected” (Office Action at page 10). Applicant respectfully disagrees with this characterization because Tumer merely teaches using an x-ray image and gamma ray data to allow a user to visually identify articles of interest, such as shoes with heroin on them, within a piece of luggage. (column 8, lines 24-33). Neither the x-rays nor the gamma ray data of Tumer are analyzed “using a plurality of analytical tools to produce a plurality of analyses” and then subjected “to a hierarchy of classifiers” as recited by claim 24.

Finally, the Office Action states that Allyson teaches that a classifier is “the confirmation of the finding [of high nitrogen values] by analyzing the readings from other windows” (Office Action at page 10). Applicant respectfully disagrees with this characterization because each “window” taught by Allyson is merely a strip of an object scanned by one detector over a period of time to produce “time-chopped outputs.” (column 7, line 31 – column 8, line 47). Therefore, these windows are merely scanned sections of an object that are subjected to the repetition of the same analytical tool, but are not “a hierarchy of classifiers” as recited by claim 24.

Since Gozani, Tumer, and Allyson do not disclose all the limitations of claim 24, claim 24 is not anticipated by Gozani, Tumer, and Allyson. Applicant respectfully requests that the rejection be withdrawn and the claim allowed.

Claims 23, 25, 27-31, 34-38, 40-43, and 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,080,856 (“Grenier”) in view of Allyson. This rejection is respectfully traversed.

The Office Action fails to establish a *prima facie* case of obviousness at least because Grenier in view of Allyson, even if properly combinable, do not teach or suggest every element of independent claim 23. To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claim 23, as amended, recites, *inter alia*, “generating neutron particles from a plurality of neutron sources, each source having an intensity of about 10^7 neutrons/second or less.” Allyson and Grenier do not teach or suggest this limitation. To the contrary, neither Alyson nor Grenier teach or suggest an intensity of the neutron source. Furthermore, it would not be obvious to adjust the intensity of the neutron source to the level recited by claim 23 because a lower intensity of the neutrons makes it more difficult to detect explosives and controlled substances (specification, paragraph 0003) and simply lowering the intensity may render a detection system inoperable.

Since Allyson and Grenier do not teach or suggest all of the limitations of claim 23, claim 23 is not obvious over the cited references. Claims 25-32, 34-38, and 40-47 depend from claim 23 and are patentable at least for the reasons mentioned above. Applicant respectfully requests that the rejection of claims 25-32, 34-38, and 40-47 be withdrawn.


Newly added claim 49 recites, *inter alia*, “isolating common eigen value signatures of the substances contained within the object to generate signature data; forming a correlation function of the signature data; decomposing wavelets of the correlation function of the signature data; and comparing the incoming decomposed signature data with a library of signatures to determine if an explosive or controlled substance is present in the object.” None of the cited references, alone or in combination teach or suggest this limitation. Since none of the cited references disclose the limitations of claim 49, claim 49

is not anticipated by the cited references. Applicant respectfully requests that the claim be allowed.

In view of the above, Applicant believes the pending application is in condition for allowance.

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